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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/590,715

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Kazuhisa Yamamoto

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EXAMINER

HOWARD, RYAN D

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/590,715	Applicant(s) YAMAMOTO ET AL.	
	Examiner RYAN HOWARD	Art Unit 2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 June 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Acknowledgement made of amendment filed 6/03/2009.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 21 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 21 recites the limitation "calculates an appropriate correction value of the angle formed between the two glass plates" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

For the purpose of examination claim 21 will be interpreted as depending from claim 18.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimada et al. (US 6,670,603 B2) in view of Pate (US 7,187,343 B2).

Regarding claim 16, Shimada teaches a projection optical system (16,15, figure 3) which projects video by short-wavelength laser light sources (column 5 lines 5-12)

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which emit laser lights as linear polarized (lasers emit linearly polarized light) lights of at least three colors of red, blue and green (11, 12, 13, figure 3).

Shimada does not teach a camera device which captures external light through the projection optical system, wherein said projection optical system projects the three-color laser lights without losses in their light amounts using prisms performing polarization, which are arranged such that the respective axes thereof coincide with the polarization of the three-color laser lights, and a part of the captured external light is incident on the camera device by the prisms performing polarization.

Pate teaches a camera device (64, figure 3; column 6 lines 6-7; column 4 line 63) which captures external light through the projection optical system (column 6 lines 17-22), wherein said projection optical system projects the three-color laser lights without losses in their light amounts using prisms performing polarization (66, figure 3; this beamsplitter when modifying the projection system of Shimada would transmit the lasers through to the display surface in the same manner this prism is used in Pate), which are arranged such that the respective axes thereof coincide with the polarization of the three-color laser lights (beamsplitters work in this manner to transmit light of one polarization and reflect light of an orthogonal polarization), and a part of the captured external light is incident on the camera device by the prisms performing polarization (column 6 lines 17-22).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the projection system of Shimada to include the calibration system of Pate because the calibration system of Pate minimizes the

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differences between the field of view of the optical unit and the displayed image (column 5 lines 59-61) providing a good calibration thereby improving image quality.

5. Claims 17, 20, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimada et al. (US 6,670,603 B2) in view of Pate (US 7,187,343 B2) as applied to claim 1 above, and further in view of Kiyoaki (JP 2002/328428 A).

Regarding claim 17, Shimada does not teach a camera shake detection unit which detects the amount of camera shake of the video projector; and a camera shake correction unit which corrects the camera shake according to the detected amount of camera shake, wherein said camera shake correction unit performs correction of the camera shake so that projection positions of the laser light of the three colors of red, blue and green are not deviated when the video is projected.

Kiyoaki teaches an image projection system including a camera shake detection unit that detects an amount of camera shake of the video projector (paragraph 0033); and a camera shake correction unit (101, 103, figure 1) that corrects the camera shake according to the detected amount of camera shake (paragraph 0034), and that the scanning mirror is driven in response to changes in the position of the projector such that the image produced is the ideal image (paragraph 0032, lines 12-18). A person of ordinary skill in the art would recognize that this feature implies that the scanning mirror is being driven to maintain the position of the projected image such that the image is stationary on the surface. A stationary image is equivalent to "the projecting positions of the laser light...is not deviated when the video is projected."

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It would have been obvious to a person having ordinary skill in the art at the time the invention was made to maintain the projection positions of the lasers in order to prevent the user from becoming disoriented by a constantly shifting and distorting image.

Regarding claim 20, Shimada does not teach said camera shake detection unit detects the camera shake amount from videos at four corners of an image that is shot by the camera device.

Pate teaches said camera shake detection unit detects the camera shake amount from videos at four corners of an image (16, figure 1; column 2 lines 2-3) that is shot by the camera device (column 4 line 63).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the projection system of Shimada to include the calibration system of Pate because the calibration system of Pate minimizes the differences between the field of view of the optical unit and the displayed image (column 5 lines 59-61) providing a good calibration thereby improving image quality.

Regarding claim 22, Shimada teaches an infrared laser light (column 5 line 50) being irradiated to a region outside the projection region (42, figure 6); the infrared laser light from the region outside the projection region being detected (figure 6).

Shimada does not teach a camera device.

Pate teaches a camera device (column 4 line 63).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the projection system of Shimada to include the

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calibration system of Pate because the calibration system of Pate minimizes the differences between the field of view of the optical unit and the displayed image (column 5 lines 59-61) providing a good calibration thereby improving image quality.

6. Claims 18, 19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimada et al. (US 6,670,603 B2) in view of Pate (US 7,187,343 B2) in view of Kiyooki (JP 2002/328428 A) as applied to claim 17 above, and further in view of Tanaka (US 5,479,236).

Regarding claim 18, Shimada does not teach two glass plates supported by support members, a special film which is attached to the two glass plates so that a space between the two glass plates is sealed, and a high refractive index liquid having a high transparency which is filled in the sealed space between the two glass plates.

Tanaka teaches two glass plates (55a-b, figure 10) supported by support members (something implicitly supports the glass plates), a special film which is attached to the two glass plates (56, figure 10) so that a space between the two glass plates is sealed, and a high refractive index liquid (57, figure 10) having a high transparency which is filled in the sealed space between the two glass plates.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the projection system of Shimada in view of Pate in view of Kiyooki to further include the vertical angle prism of Tanaka to compensate for image blurring caused by vibrations (column 9 lines 55-60) in the projection system thereby improving image quality.

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Regarding claim 19, Tanaka teaches a first glass plate of the two glass plates (55a, figure 10) which is positioned on the projection surface side (13, is the image pickup, therefore 55a would be on the projection side when used in combination), and a second glass plate rotatable due to the second glass plate being connect to an actuator (11, figure 10 is an actuator). Regarding the first and second support members, one of ordinary skill in the art would fix the first plate and actuate the second plate in order to compensate best for image blurring.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the projection system of Shimada in view of Pate in view of Kiyooki to further include the vertical angle prism of Tanaka to compensate for image blurring caused by vibrations (column 9 lines 55-60) in the projection system thereby improving image quality.

Regarding claim 21, Tanaka teaches said camera shake correction unit calculates an appropriate correction value of the angle formed between the two glass plates on the basis of the camera shake amount detect by said camera shake detection unit, and performs correction on the basis of a calculated correction value (column 10 lines 15-24).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the projection system of Shimada in view of Pate in view of Kiyooki to further include the vertical angle prism of Tanaka to compensate for image blurring caused by vibrations (column 9 lines 55-60) in the projection system thereby improving image quality.

Response to Arguments

7. Applicant's arguments filed 6/03/2009 have been fully considered but they are not persuasive.

Regarding Applicant's arguments that Shimada and Pate do not teach (Applicant's arguments page 14 lines 15-22), "a projection optical system that projects three-color laser lights without losses in their light amounts using prisms performing polarization, which are arranged such that the respective axes thereof coincide with the polarizations of the three-color laser lights, and a part of the captured external light is incident on the camera device by the prisms performing polarization," Examiner respectfully disagrees.

Pate teaches a camera device (64, figure 3; column 6 lines 6-7; column 4 line 63) which captures external light through the projection optical system (column 6 lines 17-22), wherein said projection optical system projects the three-color laser lights without losses in their light amounts using prisms performing polarization (66, figure 3; this beamsplitter when modifying the projection system of Shimada would transmit the lasers through to the display surface in the same manner this prism is used in Pate), which are arranged such that the respective axes thereof coincide with the polarization of the three-color laser lights (beamsplitters work in this manner to transmit light of one polarization and reflect light of an orthogonal polarization), and a part of the captured external light is incident on the camera device by the prisms performing polarization (column 6 lines 17-22).

Therefore, Applicant's arguments on this point are not persuasive.

Applicant's arguments with respect to claim 16 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RYAN HOWARD whose telephone number is (571)270-5358. The examiner can normally be reached on Monday-Friday 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diane Lee can be reached on (571)272-2399. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/William C. Dowling/
Primary Examiner, Art Unit 2851

/RYAN HOWARD/
Examiner, Art Unit 2851
9/28/2009